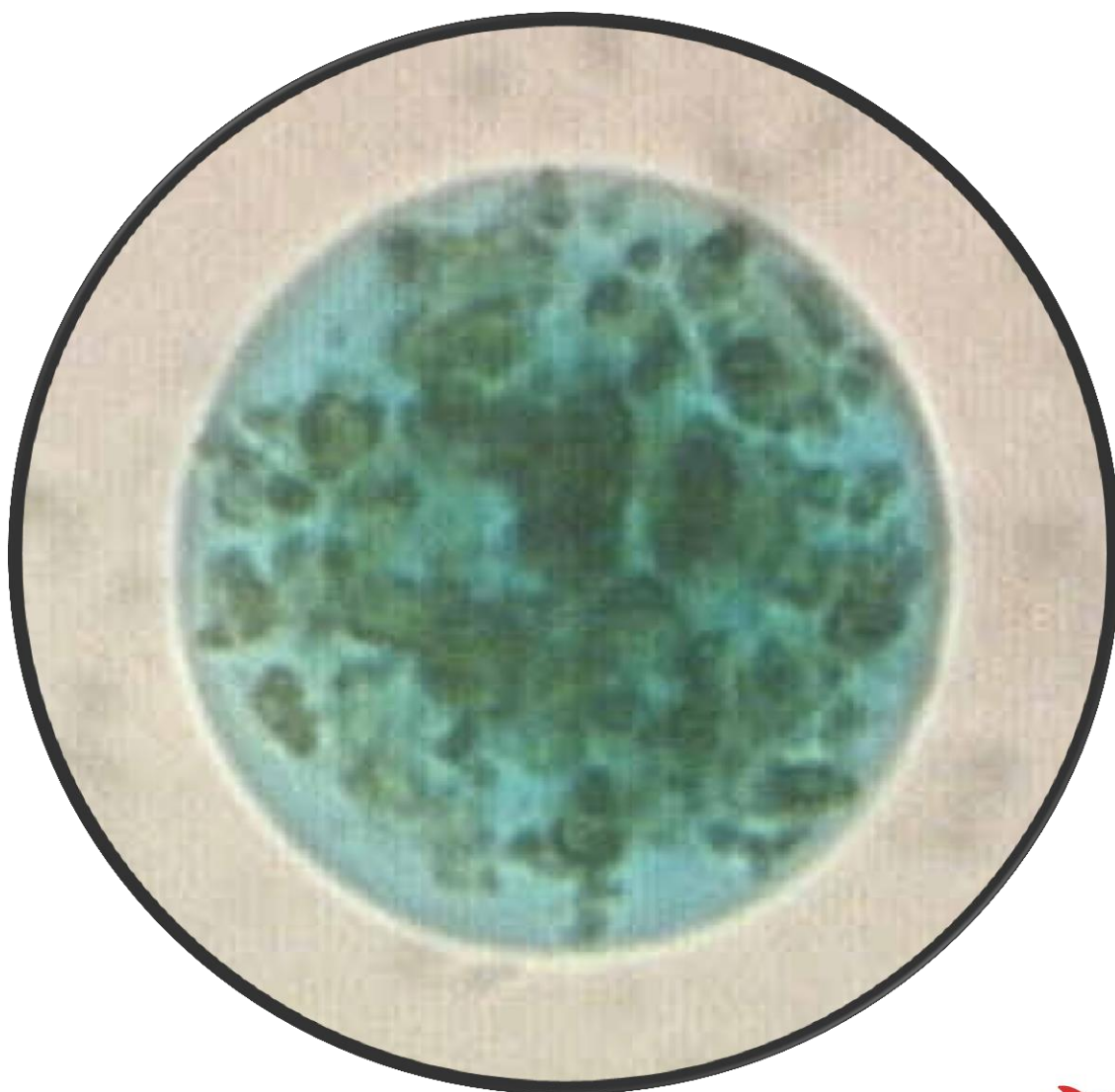


M-Beads Magnetic Beads

For Applications in Genomics & Proteomics



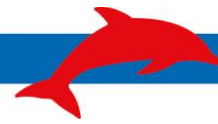
Mo Bi Tec
MOLECULAR BIOTECHNOLOGY



Content

1. M-Beads Products for Applications in Genomics	3
1.1 Separate M-Beads for DNA Isolation	5
1.2 Magnetic DNA Isolation and Purification Kits	7
1.2.1 MagSi-DNA clean ^{FIX}	7
1.2.2 MagSi-NGS ^{PREP}	8
1.2.3 MagSi-gDNA Blood Kit	9
2. M-Beads Products for Applications in Proteomics.....	10
2.1 Sample preparation for protein and peptide analysis.....	10
2.2 Immunoprecipitation & IgG purification	11
3. <i>In Vitro</i> Diagnostics and R&D Applications	12
3.1 Immunoassays.....	12
3.2 M-Beads MIA for magnetic immunoassays	13
3.3 M-Beads Tools for personalized R&D and other applications.....	14
4. Magnetic Antibodies & Conjugates: Epitope Tags and More.....	18
5. Magnetic Separators.....	19
6. Customized Products.....	19
7. Other Application Examples.....	19
8. Storage & Handling.....	20
9. Contact and Support.....	20

For research use only!



1. M-Beads Products for Applications in Genomics

Over the past decades many different genomic applications using magnetic beads for sample preparation have been developed. Magnetic beads can be applied as solid support phase in DNA extraction and purification with a simple bind-wash-elute principle. An overview of a typical magnetic bead based DNA extraction is shown in Figure 1.

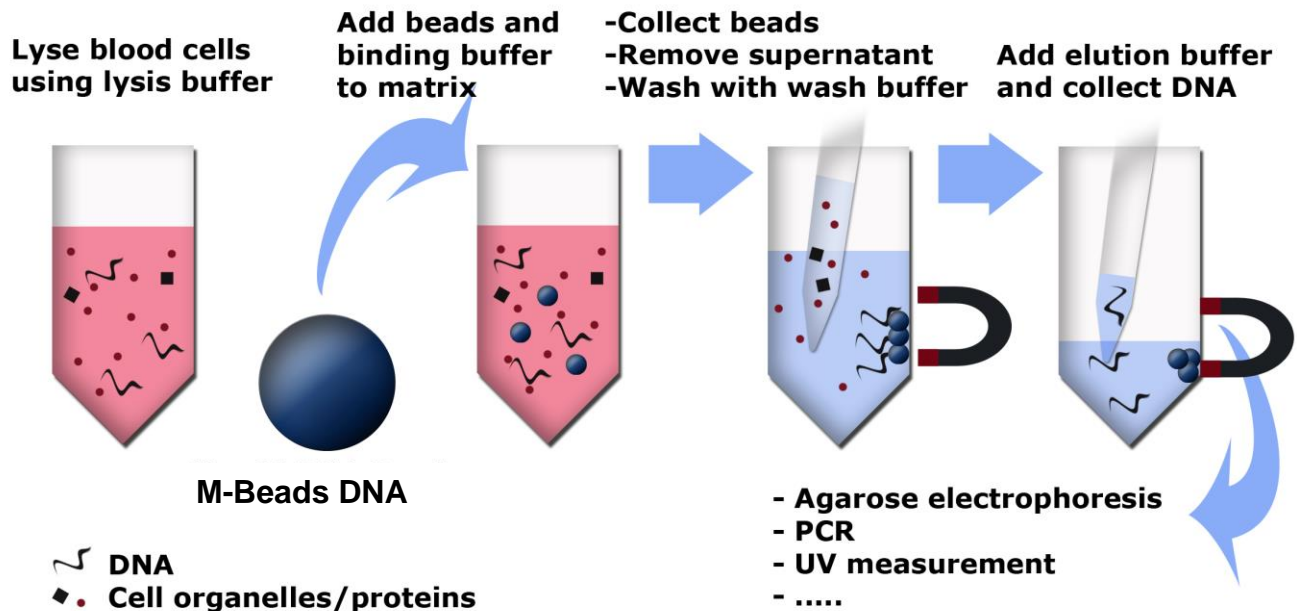


Figure 1. Overview of DNA extraction using M-Beads DNA

An M-Bead DNA for every genomic application

New genomic applications of magnetic beads are developed every day, and a wide range of physical characteristics for beads is required in various sample preparation processes. Magnetic bead requirements can be different in size, shape, magnetic strength (ferromagnetic/superparamagnetic), suspension time, and active surface functionality. Because of all these factors, choosing the best magnetic bead is critical for best results in a particular application.

Note:

The M-Beads products for genomics below are intended for own development of protocols and suitable for various sample sources and buffer systems. The M-Beads DNA product family includes a wide range of physical properties, e.g., a silica or carboxyl-modified surface. For screening purposes, all different beads are offered together in the M-Beads DNA Trial Kit (p. 5).



Physical characteristics of M-Beads

When selecting a type of magnetic bead, the use of mixing/heating tools or process time should be considered (a magnetic bead which sediments fast may need a vortexer). The standard M-Beads for genomics include 3 types of physical particles, each available with 2 different surfaces. Tables 1 and 2 describe the physical properties and specifications of M-Beads DNA, M-Beads DNA allround, and M-Beads DNA 600.

Table 1. Physical properties of M-Beads for genomics

	M-Beads DNA	M-Beads DNA allround	M-Beads DNA 600
Collection speed	+++	++	+
Time in suspension	+/-	+	++
Accessible surface area	+	++	+++
Bead density	+++	+	++
Appearance	black	brown	brown
Recommended prep scale	all	all	Mini/Midi

Table 2. Specifications of M-Beads for genomics (*per 20 µl bead suspension)

	M-Beads DNA	M-Beads DNA allround	M-Beads DNA 600
Mean diameter	300 nm	1.2 µm	600 nm
Concentration	300 mg/ml	20 mg/ml	20 mg/ml
Shape	spherical	spherical	spherical
Particles/ml	$6.85 \cdot 10^{12}$	$1.7 \cdot 10^{10}$	$2.8 \cdot 10^{10}$
Density	3.1 g/cm^2	1.4 g/cm^2	1.2 g/cm^2
Surface area	$6.5 \text{ m}^2/\text{g}$	$3.6 \text{ m}^2/\text{g}$	$8.3 \text{ m}^2/\text{g}$
DNA yield/isolation*	up to 8 µg	up to 8 µg	up to 10 µg
DNA binding capacity	~1.3 µg/mg	~20 µg/mg	~25 µg/mg
Stability	pH 3-11	pH 3-11	pH 3-11

Surfaces: Silica and Carboxylated

Each binding, washing, and elution method requires a specific surface functionality. DNA binding can be achieved by precipitation or ionic interaction with, for instance, chaotropic salts, “low pH” method, or PEG based “SPRI”. Table 3 below describes the compatibility of different surfaces, Silica and Carboxylated, with commonly used methods for extraction and purification.

Table 3. Compatibility of M-Beads for genomics with different buffer systems

	M-Beads DNA	M-Beads DNA COOH	M-Beads DNA allround	M-Beads DNA allround COOH	M-Beads DNA 600	M-Beads DNA 600 COOH
Chaotropic buffer system	+++	+	+++	+	+++	+
Low pH binding system	-	++	+	+++	+	+++
PEG-based buffers	+	++	+	+++	+	+++



1.1 Separate M-Beads for DNA Isolation

M-Beads DNA Trial kit

A complete set of eight types of M-Beads for genomic applications, offered in a single kit for trial purposes in development of new assays. The kit includes:

- M-Beads DNA
- M-Beads DNA COOH
- M-Beads DNA allround
- M-Beads DNA allround COOH
- M-Beads DNA 600
- M-Beads DNA 600 COOH

Order No.	Product	Size	Amount
PR-MAG00055	M-Beads DNA Trial Kit (300 nm, 600 nm, 1.2 µm, and 3.0 µm)	varied	8 x 2 ml

Silica beads

M-Beads Magnetic silica beads DNA

Ultrafast magnetic silica particles with instant magnetic separation and short suspension time. Intended for nucleic acid isolations from various sources (blood, cells, bacteria, etc.) for manual and automated workflow. Bead concentration: 300 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00036-01	M-Beads Magnetic silica beads DNA	300 nm	2 ml
PR-MAG00036-02	M-Beads Magnetic silica beads DNA	300 nm	10 ml
PR-MAG00036-03	M-Beads Magnetic silica beads DNA	300 nm	100 ml

M-Beads Magnetic silica beads DNA allround

Magnetic silica beads with optimized magnetic content for fast separation and medium suspension time without mixing. Intended for nucleic acid isolations from various sources (blood, cells, bacteria, etc.) for manual and automated workflow. Bead concentration: 20 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00035-01	M-Beads Magnetic silica beads DNA allround	1.2 µm	2 ml
PR-MAG00035-02	M-Beads Magnetic silica beads DNA allround	1.2 µm	10 ml
PR-MAG00035-03	M-Beads Magnetic silica beads DNA allround	1.2 µm	100 ml

M-Beads Magnetic silica beads DNA 600

Magnetic silica beads with large surface area and optimized magnetic content for long suspension time. Intended for nucleic acid isolation from various sources (blood, cells, bacteria etc.) for manual and automated work-flow. Bead concentration: 20 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00076-01	M-Beads Magnetic silica beads DNA 600	600 nm	2 ml
PR-MAG00076-02	M-Beads Magnetic silica beads DNA 600	600 nm	10 ml
PR-MAG00076-03	M-Beads Magnetic silica beads DNA 600	600 nm	100 ml



Carboxylated beads

M-Beads Magnetic silica beads DNA COOH

Magnetic silica particles with instant magnetic separation and short suspension time. Intended for nucleic acid isolation from various sources (blood, cells, bacteria, etc.) for manual and automated workflow. Under specific conditions, the carboxylated surface enables higher yield and purity from samples. Bead concentration: 300 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00044-01	M-Beads Magnetic silica beads DNA COOH	300 nm	2 ml
PR-MAG00044-02	M-Beads Magnetic silica beads DNA COOH	300 nm	10 ml
PR-MAG00044-03	M-Beads Magnetic silica beads DNA COOH	300 nm	100 ml

M-Beads Magnetic silica beads DNA allround COOH

Magnetic silica beads with optimized magnetic content for fast separation and medium suspension time. Intended for nucleic acid isolation from various sources (blood, cells, bacteria, etc.) for manual and automated workflow. Under specific conditions, the carboxylated surface enables higher yield and purity from samples. Bead concentration: 20 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00037-01	M-Beads Magnetic silica beads DNA allround COOH	1.2 µm	2 ml
PR-MAG00037-02	M-Beads Magnetic silica beads DNA allround COOH	1.2 µm	10 ml
PR-MAG00037-03	M-Beads Magnetic silica beads DNA allround COOH	1.2 µm	100 ml

M-Beads Magnetic silica beads DNA 600 COOH

Magnetic silica beads with large surface area and optimized magnetic content for long suspension time. Intended for nucleic acid isolation from various sources (blood, cells, bacteria, etc.) for manual and automated workflow. Under specific conditions, the carboxylated surface enables higher yield and purity from samples. Bead concentration: 20 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00077-01	M-Beads Magnetic silica beads DNA 600 COOH	600 nm	2 ml
PR-MAG00077-02	M-Beads Magnetic silica beads DNA 600 COOH	600 nm	10 ml
PR-MAG00077-03	M-Beads Magnetic silica beads DNA 600 COOH	600 nm	100 ml



1.2 Magnetic DNA Isolation and Purification Kits

1.2.1 MagSi-DNA clean^{FIX}

The most efficient way to clean DNA

Magnetic bead-based **MagSi-DNA clean^{FIX}** offers one single product for efficient PCR clean-up and Dye terminator removal from DNA Sanger sequencing reactions, enabling researchers to address various genomic clean-up steps with the same product. MagSi-DNA clean^{FIX} uses flexible protocols and is easy to automate for high-throughput processing.

High quality results

- High yield of DNA products from 80 bp up to 30 kb
- Excellent removal of unincorporated nucleotides, primers, primer dimers, and other contaminants
- Guarantees reliable sequencing results through a high average signal strength, high trace score, and long contiguous read lengths

One single product to simplify your routine

- Allows both PCR clean-up and Dye Terminator Removal (DTR) in sequencing clean-up
- Protocols for 96- and 384-well PCR plates
- Protocols for 5, 10, and 20 µl sample volumes
- Processing of PCR fragments, plasmids, and BACs

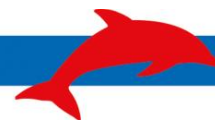
Easy to automate

- Fast and robust protocols resulting in high-throughput on automated systems
- Single magnetic bead reagent simplifies handling, system set-up, and limits waste
- Optimized separation performance using validated magnetic separators for 96- or 384-well PCR plates
- Compatible with many different automated liquid handling systems (e.g., PerkinElmer, Agilent, Sias)

Order No.	Product	Amount
MD60013	MagSi-DNA clean ^{FIX}	400/800 purifications
MD60014	MagSi-DNA clean ^{FIX}	5,000/10,000 purifications

Available for download from www.mobitec.com:

- High-Throughput 96-well and 384-well nucleic DNA purification with MagSi-DNA clean^{FIX} application note with PerkinElmer
- Replacement Guide to replace cleanSEQ and ampureXP from Agencourt even without changing the software protocol on your liquid handling system
- MagSi-DNA clean^{FIX} Product Leaflet



1.2.2 MagSi-NGS^{PREP}

A simple and quick way to consistent Next Generation Sequencing (NGS) results

MagSi-NGS^{PREP} is designed for optimized purification of next generation library preparation through efficient clean-up of the successive enzymatic reactions (i.e., end repair, dA-tailing, adapter ligation). MagSi-NGS^{PREP} is used for clean-up in combination with library-targeting sequencers such as Life Technologies' ABI SOLiD, Ion Torrent; Illumina's HiSeq 2000, MiSeq, GAllx; and Roche's 454.

Magnetic bead-based MagSi-NGS^{PREP} offers an efficient solution for clean-up and size selection in library preparation of NGS sequencing reactions. The simple and flexible protocol can be adjusted to your specific application and NGS platform. MagSi-NGS^{PREP} can be used manually, but it's also easy to automate for high-throughput processing. In conclusion: a simple and quick way to consistent NGS results.

High quality results

- High recovery of DNA fragments; greater than 70%
- Excellent removal of enzymes, primers, oligonucleotides, polymerases, and other contaminants
- Fragment size selection adjustable between 100 and 1000 base pairs
- Guarantees consistent sequencing results

Simplify your routine

- One product for all clean-up and size selection steps in the library preparation workflow
- Simple bind-wash-elute procedure
- Protocol easily adjustable for clean-up or size selection using specific reagent-to-sample ratios
- Manual and automated use
- Works perfectly for common library preparation kits

Easy to automate

- Fast and robust protocol resulting in a high-throughput on automated systems
- Optimized separation performance using validated magnetic separators for 96- and 384-wells PCR plates
- Compatible with many different automated liquid handling systems, e.g., PerkinElmer[®], Agilent Technologies[®], Beckman Coulter[®]

Order No.	Product	Amount
MD60021	MagSi-NGS ^{PREP}	5 ml
MD61021	MagSi-NGS ^{PREP}	75 ml



1.2.3 MagSi-gDNA Blood Kit

Fast and Economic Extraction of Genomic DNA

The **MagSi-gDNA blood kit** allows fast and cost-effective extraction of genomic DNA from a wide range of sample volumes. The paramagnetic bead-based kit can be used on whole blood samples drawn in EDTA, citrate, or heparin tubes. Due to the ready-to-use reagents and simple protocol the kit is easy to use and easy to automate. As a linear volume-to-volume ratio is used between whole blood sample and reagents, it is possible to use the kit in any situation where genomic DNA from blood is needed.

Features

- Suitable for whole blood, drawn in citrate, EDTA, or heparin tubes
- Reproducible, high yield of DNA: up to 8 µg from 200 µl fresh or frozen whole blood
- Excellent purity, $A_{260/280} = 1.7-2.0$
- Suitable for many genomic applications, including PCR, DNA sequencing, and Southern blotting
- Simple bind-wash-elute procedure
- Protocol easily adjustable to different sample volumes
- Manual and automated use
- Safe sample handling with minimal user input
- Also suitable for isolation of DNA from saliva, serum/plasma, and cultured cells

Easy to automate

- Compatible with many different automated liquid handling systems, e.g., KingFisher™, PrimaRWS®, PIPETMAX®, and JANUS®
- Short and easy protocols
- Suitable for small, medium, and high-throughput automation
- Variable volume sample input possible

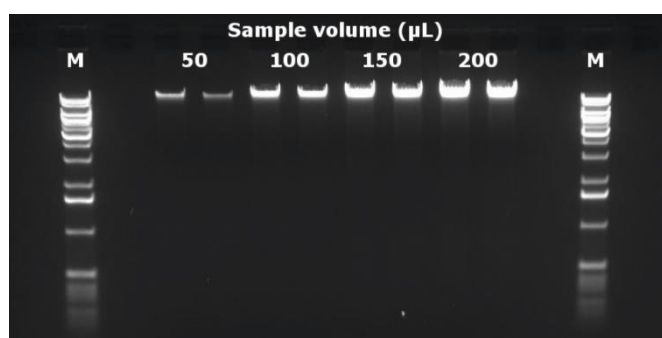


Figure 1. Gel electrophoresis of genomic DNA extracted from 50-200 µl fresh whole blood. M: 1 kb Extension ladder (Life Technologies)

Order No.	Product	Amount
MD60001	MagSi-gDNA blood kit	96 preps
MD61001	MagSi-gDNA blood kit	10 x 96 preps
MD62001	MagSi-gDNA blood kit	10 x 960 preps



2. M-Beads Products for Applications in Proteomics

2.1 Sample preparation for protein and peptide analysis

M-Beads proteomics

Magnetic silica particles with C4, C8, or C18 modified surfaces for sample preparation prior to mass spectrometry analysis.

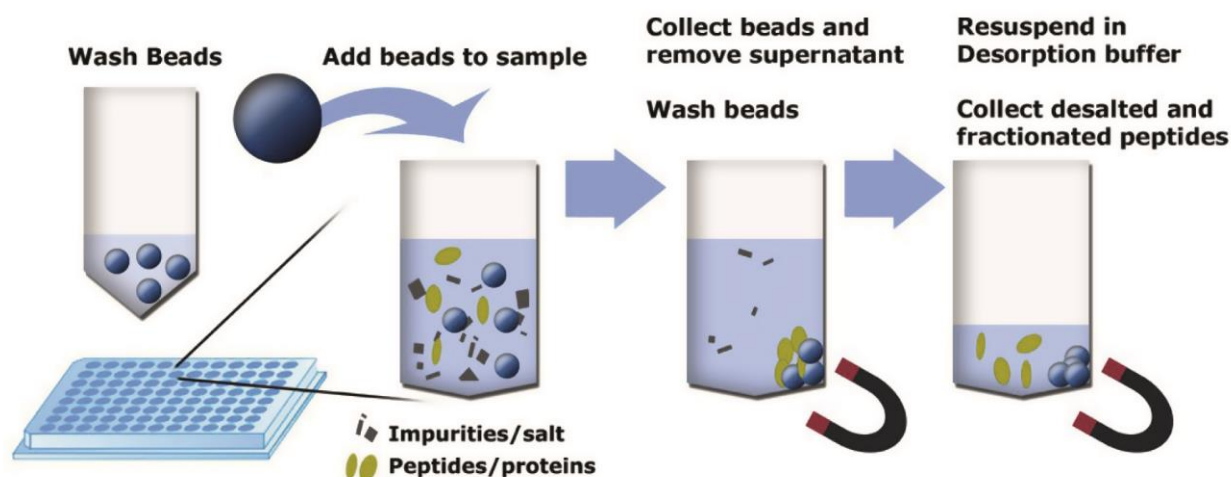


Figure 2. Principle using M-Beads proteomics reversed phase beads.

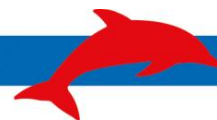
The relatively low hydrophobicity of M-Beads proteomics C4 allows the purification and fractionation of larger biomolecules like proteins. M-Beads proteomics C8 have an intermediate hydrophobicity and are suitable for sample preparation in proteomic profiling and biomarker research. M-Beads proteomics C18 are ideal for the purification, concentration, and desalting of peptides and protein digests. The bead concentration is 10 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00040-01	M-Beads Magnetic silica beads S-C4	1.2 µm	2 ml
PR-MAG00040-02	M-Beads Magnetic silica beads S-C4	1.2 µm	10 ml
PR-MAG00041-01	M-Beads Magnetic silica beads S-C8	1.2 µm	2 ml
PR-MAG00041-02	M-Beads Magnetic silica beads S-C8	1.2 µm	10 ml
PR-MAG00004-01	M-Beads Magnetic silica beads S-C18	1.2 µm	2 ml
PR-MAG00004-02	M-Beads Magnetic silica beads S-C18	1.2 µm	10 ml

M-Beads Magnetic silica beads WCX

Magnetic silica particles with weak cation exchange surface (WCX). M-Beads Magnetic silica beads WCX are ideal for lowering protein or peptide complexity. Applications include sample preparation and prefractionation prior to mass spectrometry or SDS-PAGE analysis, biomarker analysis, and serum/plasma profiling. The bead concentration is 20 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00042-01	M-Beads Magnetic silica beads WCX	1.2 µm	2 ml
PR-MAG00042-02	M-Beads Magnetic silica beads WCX	1.2 µm	10 ml



M-Beads Magnetic silica beads WAX

Magnetic silica particles with weak anion exchange surface (WAX). Similar to M-Beads Magnetic silica beads WCX, M-Beads Magnetic silica beads WAX are ideal for lowering protein or peptide complexity. Applications include sample preparation and prefractionation prior to mass spectrometry or SDS-PAGE analysis, biomarker analysis, and serum/plasma profiling. The bead concentration is 20 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00043-01	M-Beads Magnetic silica beads WAX	1.2 µm	2 ml
PR-MAG00043-02	M-Beads Magnetic silica beads WAX	1.2 µm	10 ml

→ Please inquire about kits for Therapeutic Drug Monitoring (TDM) !!

2.2 Immunoprecipitation & IgG purification

Protein A and Protein G bind to Fc regions of immunoglobulins. After binding onto a magnetic bead coated with Protein A or Protein G, immobilized immunoglobulins can be used for immunoprecipitation of various biomolecules, or can be eluted in a native or denatured state.

M-Beads Magnetic silica beads protein A

These magnetic silica particles have high quality recombinant Protein A covalently bound to the particle surface. Intended for IgG purification and immunoprecipitation. The bead concentration is 10 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00023-01	M-Beads Magnetic silica beads protein A 600	600 nm	1 ml
PR-MAG00023-02	M-Beads Magnetic silica beads protein A 600	600 nm	5 ml
PR-MAG00024-01	M-Beads Magnetic silica beads protein A 600	1 µm	1 ml
PR-MAG00024-02	M-Beads Magnetic silica beads protein A 600	1 µm	5 ml

M-Beads Magnetic silica beads protein G

These magnetic silica particles have high quality recombinant Protein G covalently bound to the particle surface. Intended for IgG purification and immunoprecipitation. The bead concentration is 10 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00030-01	M-Beads Magnetic silica beads protein A 600	600 nm	1 ml
PR-MAG00030-02	M-Beads Magnetic silica beads protein A 600	600 nm	5 ml
PR-MAG00028-01	M-Beads Magnetic silica beads protein A 600	1 µm	1 ml
PR-MAG00028-02	M-Beads Magnetic silica beads protein A 600	1 µm	5 ml



3. In Vitro Diagnostics and R&D Applications

3.1 Immunoassays

Magnetic particles are used as a solid support phase in immunoassays. M-Beads STA are superparamagnetic silica beads with a surface coating of streptavidin for use with biotinylated antibodies.

M-Beads STA

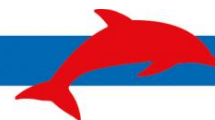
Magnetic silica particles with high quality streptavidin covalently attached to the bead surface. Applications include immunoassays and capture or purification of biotinylated molecules. Various types of this product are available, with different mean size, streptavidin coating chemistry ("Type"), and binding capacity. All parameters can be customized on request. The bead concentration is 10 mg/ml.

Order No.	Product	Size	Type*	Binding capacity (µmole biotin/mg)	Amount
PR-MAG00033-1	M-Beads STA 600	600 nm	C	3500-5000	2 ml
PR-MAG00033-2	M-Beads STA 600	600 nm	C	3500-5000	10 ml
PR-MAG00033-3	M-Beads STA 600	600 nm	C	3500-5000	100 ml
PR-MAG00045-1	M-Beads STA 600 BI	600 nm	C	6000-6800	2 ml
PR-MAG00045-2	M-Beads STA 600 BI	600 nm	C	6000-6800	10 ml
PR-MAG00045-3	M-Beads STA 600 BI	600 nm	C	6000-6800	100 ml
PR-MAG00031-1	M-Beads STA 1.0	1.0 µm	C	3500-5000	2 ml
PR-MAG00031-2	M-Beads STA 1.0	1.0 µm	C	3500-5000	10 ml
PR-MAG00031-3	M-Beads STA 1.0	1.0 µm	C	3500-5000	100 ml
PR-MAG00046-1	M-Beads STA 1.0 L	1.0 µm	C	1200-2000	2 ml
PR-MAG00046-2	M-Beads STA 1.0 L	1.0 µm	C	1200-2000	10 ml
PR-MAG00046-3	M-Beads STA 1.0 L	1.0 µm	C	1200-2000	100 ml
PR-MAG00047-1	M-Beads STA 1.0 TL	1.0 µm	T	1200-2000	2 ml
PR-MAG00047-2	M-Beads STA 1.0 TL	1.0 µm	T	1200-2000	10 ml
PR-MAG00047-3	M-Beads STA 1.0 TL	1.0 µm	T	1200-2000	100 ml
PR-MAG00048-1	M-Beads STA 1.0 TS	1.0 µm	T	3500-5000	2 ml
PR-MAG00048-2	M-Beads STA 1.0 TS	1.0 µm	T	3500-5000	10 ml
PR-MAG00048-3	M-Beads STA 1.0 TS	1.0 µm	T	3500-5000	100 ml
PR-MAG00060-1	M-Beads STA 3.0 L	3.0 µm	C	700-1200	2 ml
PR-MAG00060-2	M-Beads STA 3.0 L	3.0 µm	C	700-1200	10 ml
PR-MAG00060-3	M-Beads STA 3.0 L	3.0 µm	C	700-1200	100 ml
PR-MAG00061-1	M-Beads STA 3.0 TL	3.0 µm	T	500-900	2 ml
PR-MAG00061-2	M-Beads STA 3.0 TL	3.0 µm	T	500-900	10 ml
PR-MAG00061-3	M-Beads STA 3.0 TL	3.0 µm	T	500-900	100 ml

*: Type refers to the applied streptavidin coupling chemistry.

C (Carboxyl): this type is intended for applications which require a relatively hydrophilic surface and also includes a spacer.

T (Tosyl): this type is intended for applications which require beads which are more hydrophobic.



M-Beads STA Evaluation Kit

This kit includes 1 ml of the eight different M-Beads STA products listed above and is intended for evaluation purposes during trial phase of developing new assays, or bead replacement in existing assays. The bead concentration is 10 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00054	M-Beads STA Evaluation Kit (600 nm, 1 µm, 3 µm)	varied	8 x 1 ml

3.2 M-Beads MIA for magnetic immunoassays

Magnetic immunoassays (MIA) use paramagnetic beads as detection labels instead of conventional enzymes, fluorophores, or luminescent molecules. The presence of paramagnetic beads is detected by a reader which measures the magnetic response of the beads induced by a magnetic field. The signal measured by the magnetometer is proportional to the concentration of the analyte. M-Beads MIA are superparamagnetic beads with a mean diameter of 300 nm and are suitable for magnetic immunoassays in a variety of formats such as conventional lateral flow tests, microfluidic applications, and biochips.

M-Beads MIA STA 300

Superparamagnetic particles of 300 nm with high quality streptavidin covalently attached to the bead surface. Intended for use with biotinylated antibodies as a detection label in magnetic immunoassays, or as solid support phase in immunoassays with other readout techniques. The bead concentration is 10 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00038-01	M-Beads MIA-STA 300	300 nm	2 ml
PR-MAG00038-02	M-Beads MIA-STA 300	300 nm	10 ml
PR-MAG00038-03	M-Beads MIA-STA 300	300 nm	100 ml

M-Beads MIA COOH 300

Superparamagnetic particles of 300 nm with a carboxyl modified surface, intended for immobilization of antibodies or proteins with carbodiimide coupling chemistry with NH₂-containing molecules. These particles can be used as detection label in magnetic immunoassays or as solid support phase in immunoassays with other readout techniques. The bead concentration is 10 mg/ml.

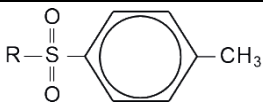
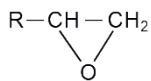
Order No.	Product	Size	Amount
PR-MAG00039-01	M-Beads MIA-COOH 300	300 nm	2 ml
PR-MAG00039-02	M-Beads MIA-COOH 300	300 nm	10 ml
PR-MAG00039-03	M-Beads MIA-COOH 300	300 nm	100 ml



3.3 M-Beads Tools for personalized R&D and other applications

M-Beads Tools are surface activated magnetic beads useful for the immobilization of proteins (e.g., antibodies, enzymes), peptides, nucleic acids, or other molecules of interest. Different surface modifications allow for choosing the optimal product for the particular molecule to be coupled and for the intended application. The M-Beads Tools platform has a broad range of functionalization possibilities such as COOH, NH₂, SH, CHO, tosyl, hydrazide, and epoxy. M-Beads Tools products are available in 600 nm, 1.0 μm, or 3.0 μm mean diameter.

Table 4: Active surfaces and example applications of M-Beads Tools

Surface modification	Formula	Example application
Silica (stored in 0.05% sodium azide)	Si-OH	<ul style="list-style-type: none"> Users' own application (e.g., functionalization of the M-Beads)
Carboxyl (stored in PBS, 0.05% sodium azide)	R-COOH	<ul style="list-style-type: none"> Protein and peptide immobilization Antibody immobilization
Aldehyde (stored in PBS, 0.05% sodium azide)	R-CHO*	<ul style="list-style-type: none"> Protein immobilization
Amine (stored in 0.05% sodium azide)	R-NH ₂	<ul style="list-style-type: none"> Protein immobilization
Sulfhydryl (stored in PBS, 0.05% sodium azide)	R-SH*	<ul style="list-style-type: none"> Immobilization via target cysteine groups; coupling to gold surfaces
Tosyl (stored in DMSO:THF 1:1)	R-CO-N ₂ -H ₂	<ul style="list-style-type: none"> Antibody immobilization Protein and peptide immobilization
Hydrazide (stored in PBS, 0.05% sodium azide)		<ul style="list-style-type: none"> Glycoprotein immobilization Protein and peptide immobilization
Epoxy (stored in DMSO:THF 1:1)		<ul style="list-style-type: none"> Enzyme immobilization Protein and peptide immobilization

* Coupling of other organic molecules, for instance nucleic acids or carbohydrates, is also possible. CHO- and SH-beads have a limited stability and must be used for coupling the ligand within 2-3 weeks after production.

Bead size

M-Beads Tools magnetic beads come in three sizes: 600 nm, 1 μm, and 3 μm. 600 nm beads have the advantage of having a larger surface area, and the sedimentation time of 600 nm M-Beads is approximately 4x slower than that of 1.0 μm beads. This allows longer incubation times without shaking/mixing and thus may be important in automated and other high-throughput applications. M-Beads with a diameter of 3 μm have stronger magnetic properties and will separate approximately 4x faster than 600 nm beads under the same conditions; approximate separation time is ≤1 minute using a suitable magnet.



M-Beads Magnetic silica beads

- Superparamagnetic silica particles for own development use
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00003-01	M-Beads Magnetic silica beads S 600	600 nm	2 ml
PR-MAG00003-02	M-Beads Magnetic silica beads S 600	600 nm	10 ml
PR-MAG00001-01	M-Beads Magnetic silica beads S 1.0	1 µm	2 ml
PR-MAG00001-02	M-Beads Magnetic silica beads S 1.0	1 µm	10 ml
PR-MAG00075-01	M-Beads Magnetic silica beads S 3.0	3 µm	2 ml
PR-MAG00075-02	M-Beads Magnetic silica beads S 3.0	3 µm	10 ml

M-Beads Magnetic silica beads S-COOH

- Superparamagnetic silica particles with a carboxyl modified surface
- Intended for carbodiimide coupling chemistry with NH₂-containing molecules
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00012-01	M-Beads Magnetic silica beads S-COOH 600	600 nm	2 ml
PR-MAG00012-02	M-Beads Magnetic silica beads S-COOH 600	600 nm	10 ml
PR-MAG00011-01	M-Beads Magnetic silica beads S-COOH 1.0	1 µm	2 ml
PR-MAG00011-02	M-Beads Magnetic silica beads S-COOH 1.0	1 µm	10 ml
PR-MAG00074-01	M-Beads Magnetic silica beads S-COOH 3.0	3 µm	2 ml
PR-MAG00074-02	M-Beads Magnetic silica beads S-COOH 3.0	3 µm	10 ml

M-Beads Magnetic silica beads S-NH₂

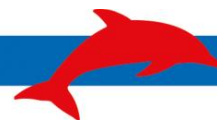
- Superparamagnetic silica particles with NH₂ modified surface
- Intended for carbodiimide coupling chemistry with COOH-containing molecules or aldehyde coupling chemistry
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00015-01	M-Beads Magnetic silica beads S-NH ₂ 600	600 nm	2 ml
PR-MAG00015-02	M-Beads Magnetic silica beads S-NH ₂ 600	600 nm	10 ml
PR-MAG00013-01	M-Beads Magnetic silica beads S-NH ₂ 1.0	1 µm	2 ml
PR-MAG00013-02	M-Beads Magnetic silica beads S-NH ₂ 1.0	1 µm	10 ml
PR-MAG00073-01	M-Beads Magnetic silica beads S-NH ₂ 3.0	3 µm	2 ml
PR-MAG00073-02	M-Beads Magnetic silica beads S-NH ₂ 3.0	3 µm	10 ml

M-Beads Magnetic silica beads S-SH

- Superparamagnetic silica particles with modified surface for SH coupling chemistry
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00018-01	M-Beads Magnetic silica beads S-SH 600	600 nm	10 ml
PR-MAG00018-03	M-Beads Magnetic silica beads S-SH 600	600 nm	100 ml
PR-MAG00016-02	M-Beads Magnetic silica beads S-SH 1.0	1 µm	10 ml
PR-MAG00016-03	M-Beads Magnetic silica beads S-SH 1.0	1 µm	100 ml
PR-MAG00072-01	M-Beads Magnetic silica beads S-SH 3.0	3 µm	10 ml
PR-MAG00072-02	M-Beads Magnetic silica beads S-SH 3.0	3 µm	100 ml



M-Beads Magnetic silica beads S-Tosyl

- Superparamagnetic silica particles with tosyl-modified surface
- Intended for tosyl coupling chemistry with antibodies and proteins
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00068-01	M-Beads Magnetic silica beads S-Tosyl 600	600 nm	2 ml
PR-MAG00068-02	M-Beads Magnetic silica beads S-Tosyl 600	600 nm	10 ml
PR-MAG00068-03	M-Beads Magnetic silica beads S-Tosyl 600	600 nm	100 ml
PR-MAG00069-01	M-Beads Magnetic silica beads S-Tosyl 1.0	1 µm	2 ml
PR-MAG00069-02	M-Beads Magnetic silica beads S-Tosyl 1.0	1 µm	10 ml
PR-MAG00069-03	M-Beads Magnetic silica beads S-Tosyl 1.0	1 µm	100 ml
PR-MAG00070-01	M-Beads Magnetic silica beads S-Tosyl 3.0	3 µm	2 ml
PR-MAG00070-02	M-Beads Magnetic silica beads S-Tosyl 3.0	3 µm	10 ml
PR-MAG00070-03	M-Beads Magnetic silica beads S-Tosyl 3.0	3 µm	100 ml

M-Beads Magnetic silica beads S-Hydrazide

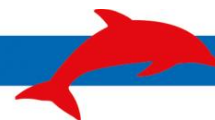
- Superparamagnetic silica particles with hydrazide-modified surface
- Intended for immobilization of antibodies and glycoproteins using aldehyde coupling chemistry with specific orientation
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00065-01	M-Beads Magnetic silica beads S-Hydrazide 600	600 nm	2 ml
PR-MAG00065-02	M-Beads Magnetic silica beads S-Hydrazide 600	600 nm	10 ml
PR-MAG00065-03	M-Beads Magnetic silica beads S-Hydrazide 600	600 nm	100 ml
PR-MAG00066-01	M-Beads Magnetic silica beads S-Hydrazide 1.0	1 µm	2 ml
PR-MAG00066-02	M-Beads Magnetic silica beads S-Hydrazide 1.0	1 µm	10 ml
PR-MAG00066-03	M-Beads Magnetic silica beads S-Hydrazide 1.0	1 µm	100 ml
PR-MAG00067-01	M-Beads Magnetic silica beads S-Hydrazide 3.0	3 µm	2 ml
PR-MAG00067-02	M-Beads Magnetic silica beads S-Hydrazide 3.0	3 µm	10 ml
PR-MAG00067-03	M-Beads Magnetic silica beads S-Hydrazide 3.0	3 µm	100 ml

M-Beads Magnetic silica beads S-Epoxy

- Superparamagnetic silica particles with epoxy-modified surface
- Intended for epoxy coupling chemistry to enzymes and other NH₂ containing molecules
- Bead concentration: 10 mg/ml

Order No.	Product	Size	Amount
PR-MAG00062-01	M-Beads Magnetic silica beads S-Epoxy 600	600 nm	2 ml
PR-MAG00062-02	M-Beads Magnetic silica beads S-Epoxy 600	600 nm	10 ml
PR-MAG00062-03	M-Beads Magnetic silica beads S-Epoxy 600	600 nm	100 ml
PR-MAG00063-01	M-Beads Magnetic silica beads S-Epoxy 1.0	1 µm	2 ml
PR-MAG00063-02	M-Beads Magnetic silica beads S-Epoxy 1.0	1 µm	10 ml
PR-MAG00063-03	M-Beads Magnetic silica beads S-Epoxy 1.0	1 µm	100 ml
PR-MAG00064-01	M-Beads Magnetic silica beads S-Epoxy 3.0	3 µm	2 ml
PR-MAG00064-02	M-Beads Magnetic silica beads S-Epoxy 3.0	3 µm	10 ml
PR-MAG00064-03	M-Beads Magnetic silica beads S-Epoxy 3.0	3 µm	100 ml

**M-Beads Magnetic silica beads S-CHO**

- Superparamagnetic silica particles with aldehyde-modified surface.
- Intended for aldehyde coupling chemistry with NH₂ containing molecules.
- Bead concentration: 10 mg/ml.

Order No.	Product	Size	Amount
PR-MAG00009-01	M-Beads Magnetic silica beads S-CHO 600	600 nm	10 ml
PR-MAG00009-02	M-Beads Magnetic silica beads S-CHO 600	600 nm	100 ml
PR-MAG00007-01	M-Beads Magnetic silica beads S-CHO 1.0	1 µm	10 ml
PR-MAG00007-02	M-Beads Magnetic silica beads S-CHO 1.0	1 µm	100 ml
PR-MAG00071-01	M-Beads Magnetic silica beads S-CHO 3.0	3 µm	10 ml
PR-MAG00071-02	M-Beads Magnetic silica beads S-CHO 3.0	3 µm	100 ml

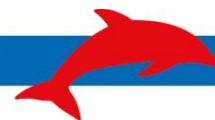


4. Magnetic Antibodies & Conjugates: Epitope Tags and More

Magnetic epitope tag antibodies, manufactured by MBL Intl., USA, include highly specific monoclonal and polyclonal epitope tag antibodies to the most common tags used by researchers. Epitope tags are frequently used with recombinant proteins from different sources, e.g., *E. coli*, yeast, insect, or mammalian cell cultures. Magnetic epitope tag antibodies allow researchers to selectively extract a target protein from the endogenous samples.

Isotype control antibodies are used to estimate the nonspecific binding of target primary antibodies due to F_c receptor binding or other protein-protein interactions. An isotype control antibody should have the same immunoglobulin type and be used at the same concentration as the test antibody.

Order No.	Product	Amount
M185-10	Anti-DDDDK-tag mAb-Magnetic Agarose	100 Tests (Gel: 1 ml)
M185-9	Anti-DDDDK-tag-Magnetic beads	1 ml
M198-10	Anti-E-tag mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
M198-9	Anti-E-tag mAb-Magnetic beads	20 Tests (Slurry: 1 ml)
D153-10	Anti-GFP mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
D153-9	Anti-GFP mAb-Magnetic beads	1 ml
D153-9B	Anti-GFP mAb-Magnetic beads (clone: RQ2) Trial Size	110 µl
M132-10	Anti-HA-tag mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
M180-10	Anti-HA-tag mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
M132-9	Anti-HA-tag mAb-Magnetic beads	1 ml
M180-9	Anti-HA-tag mAb-Magnetic beads	1 ml
M132-9B	Anti-HA-tag mAb-Magnetic beads (clone: 5D8) Trial Size	110 µl
D291-10	Anti-His-tag mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
D291-9	Anti-His-tag mAb-Magnetic beads	1 ml
D291-9B	Anti-His-tag mAb-Magnetic beads (clone: OGHis) Trial Size	110 µl
D058-9	Anti-Multi Ubiquitin mAb-Magnetic beads	1 ml
M047-9B	Anti-Myc-tag mAb Magnetic beads (clone: PL14) Trial Size	110 µl
M047-10	Anti-Myc-tag mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
M047-9	Anti-Myc-tag mAb-Magnetic beads	1 ml
M165-10	Anti-RFP mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
M165-9	Anti-RFP mAb-Magnetic beads	1 ml
M165-9B	Anti-RFP mAb-Magnetic beads	110 µl
M167-10	Anti-V5-tag mAb-Magnetic Agarose	20 Tests (Gel: 200 µl)
M167-9	Anti-V5-tag mAb-Magnetic beads	1 ml
M167-9B	anti-V5-tag mAb-Magnetic beads	110 µl
M201-10	Anti-Phosphotyrosine mAb-Magnetic Agarose	20 Tests (200 µl Gel)
M075-9	Mouse IgG1 (isotype control)-Magnetic beads	20 Tests (Slurry: 1 ml)
M076-9	Mouse IgG2a (isotype control)-Magnetic beads	20 Tests (Slurry: 1 ml)
M077-9	Mouse IgG2b (isotype control)-Magnetic beads	20 Tests (Slurry: 1 ml)
MJS006	Papain-Magnetic beads	1 ml (1% slurry)
MJS003	Protein A/G-Magnetic beads	1 ml (1% slurry)
MJS001	Protein A-Magnetic beads	1 ml (1% slurry)
MJS002	Protein G-Magnetic beads	1 ml (1% slurry)
MJS004	Protein L-Magnetic beads	1 ml (1% slurry)
M081-9	Rat IgG2a (isotype control)-Magnetic beads	20 Tests (Slurry: 1 ml)
MJS005	Streptavidin-Magnetic beads	1 ml (1% slurry)



5. Magnetic Separators

Routine Magnetic Separators

Magnetic Separators are intended for manual processing in tubes, tube-strips, and microplates.

Order No.	Product	Amount
PR-MAGS01	Magnetic Separator M12+12 for the isolation of M-Beads Magnetic silica beads in 12 x 1.5 ml and 12 x 2 ml tubes	1 each
PR-MAGS02	Magnetic Separator M96 for the isolation of M-Beads Magnetic silica beads in microtiter plate format (96 wells)	1 each
PR-MAGS03	Magnetic Separator for PCR Strips	1 each
3190	Magnetic Rack 1.5 ml x 8 tubes (manufactured by MBL Intl.)	1 each
JM-1999-1	Magnetic Separator (manufactured by MBL Intl.)	1 each

Magnetic Separators SBS

Magnetic Separators SBS are intended for automated processing of magnetic beads and kits in 96 and 384 well microplates. The separators include an SBS standard registration base for easy placement on liquid handling instruments, and are suitable for separation in PCR microplates and many other microplates.

Order No.	Product	Amount
PR-MAGS05	Magnetic Separator 96 SBS	1 each
PR-MAGS06	Magnetic Separator 384 SBS	1 each

6. Customized Products

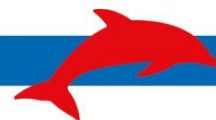
M-Beads Made-To-Measure

Tailor made magnetic and non-magnetic beads – rapid prototyping and standardization.

Order No.	Product	Amount
PR-MAGC01	M-Beads Made-To-Measure Feasibility Study	1 each
PR-MAGS02	M-Beads Made-To-Measure Project Definition	1 each
PR-MAGS03	M-Beads Made-To-Measure Production	1 each

7. Other Application Examples

- Bacterial capture with boronic acid or amino acid modified magnetic beads
- Magnet-assisted cell transfection
- Specific isolation and purification of transfected cells
- Magnetic separation of poly (A) mRNA
- Magnetic fluid hyperthermia treatment (MFH) of cancer
- Enzymatic treatment of cell extracts and other probes
- Removal of toxins and heavy metals from drinking water
- Isolation of noble metals



8. Storage & Handling

Most M-Beads products are stable for at least 1 year after purchasing date when stored at 2-8 °C. They should be stored in a well closed vial and upright position to prevent drying of the beads as this may result in a decrease of activity. However, some surface modifications may have specific requirements. Therefore, we strongly advise to carefully read the data sheet of the particular product upon receipt.

Do not freeze the product! Vortex the beads well before use. Wash the beads to remove preservatives that could interfere with your application.

For kits containing multiple compounds please see product insert.

9. Contact and Support

MoBiTec GmbH ◆ Lotzestrasse 22a ◆ D-37083 Goettingen ◆ Germany

Customer Service – General inquiries & orders

phone: +49 (0)551 707 22 0

fax: +49 (0)551 707 22 22

e-mail: order@mobitec.com

Technical Service – Product information

phone: +49 (0)551 707 22 70

fax: +49 (0)551 707 22 77

e-mail: info@mobitec.com

MoBiTec in your area: Find your local distributor at

www.mobitec.com